

# Descriptions of a sample of recommendations from the Arizona Climate Change Advisory Group, January 30, 2007

## **1. Demand-Side Efficiency Goals, Funds, Incentives, and Programs:**

This policy option considers energy savings goals for electricity and natural gas, and the policy, program, and funding mechanisms that might be used to achieve these goals. These are intended to work in tandem with other strategies under consideration by the RCI and ES TWGs.

**Policy Design:** This option contains three principal elements – goals, funding and implementation mechanisms, and planning -- along with several supporting activities, as described below.

**Goals:** Suggested energy savings goals are as follows:

- **Electricity (energy savings target):** 5% savings by 2010, 15% savings by 2020. These savings targets would be for electricity sales (MWh), and would reflect cumulative (from today), verified savings as a percentage of those years' (projected) loads, starting from the time of policy adoption.
- **Natural Gas (utility spending target):** ramp up to spending 1.5% of gas utility revenues by 2015. Further decisions by the ACC to decouple gas sales and revenues are viewed as central to achieving this target.

**Implementation Mechanisms:**

Several policy options are commonly used to overcome market, administrative, and institutional barriers to cost-effective efficiency improvements. These options can include public benefit charges, tariff riders, enabling legislation, and/or regulatory directives. They can also work together with state and national tax incentives for energy efficient equipment. Indeed, an evolving and flexible mix of these policy mechanisms may be needed to achieve the efficiency goals described here.

**Incorporation of Efficiency in a Planning Context:** Inclusion of energy efficiency resource in an integrated resource planning (IRP) process can enable the overall most efficient and cost-effective delivery of energy services. IRP is currently practiced in Arizona, and is under consideration by the ES TWG. In addition, supporting activities may be important elements in the success of energy efficiency strategies. These supporting strategies could include consumer education and outreach programs.

These targets would apply to all utilities in the state. Electricity and natural gas goals are deliberately expressed in different metrics -- energy savings and revenue targets, respectively – due to recognized differences in experience with efficiency programs with each fuel. Experience with electricity efficiency is sufficient to enable targets to be established, as has been done in several states (such as CA and TX). Experience with natural gas efficiency programs is more limited, thus it may be premature to establish energy savings goals.

CCAG members expressed a desire to ensure that these targets are adequately ambitious, and thus to revisit these targets once initial analysis is complete. based energy-efficiency extension services), and market transformation programs and organizations. Supporting strategies will be considered as part of overall recommendations, but their impacts will not be quantified. They could also include decoupling utility sales and revenues and creating performance incentives that reward utilities for implementing effective DSM programs.

## **2. Appliance Standards**

### **Policy Description:**

Implementation of State appliance efficiency standards for appliances not covered by federal standards or where higher-than-federal standard efficiency requirements are appropriate.

### **Policy Design:**

Appliance efficiency standards reduce the market cost of energy efficiency improvements by incorporating technological advances into base appliance models, thereby creating economies of scale. Arizona, along with several other states, recently adopted efficiency standards for appliances not covered by federal standards. These state actions ultimately resulted in the adoption of standards for additional appliances in the Energy Policy Act of 2005. Moreover, California has established standards for a number of appliances not currently included in Arizona or national legislation, such as pool pumps, consumer electronics (stand-by power use), and general-service incandescent lamps.

The specific policy approach suggested by the TWG is to:

- First, advocate for stronger federal appliance efficiency standards where this is technically feasible and economically justified.
- Second, for those appliances not likely to be covered by federal efforts, pursue efficiency standards already adopted by California and/or other states.
- Where possible, consider encouraging local manufacturing of high-efficiency appliances and equipment when adopting state standards.

### **Implementation Method(s):**

Codes and Standards

## **3. Building Standards/Codes for Smart Growth**

### **Policy Description:**

Given the State's growth and the long lifetime of buildings, the current and future building codes will have a considerable impact on future energy use in buildings, and on related greenhouse gas emissions. Thus improved and increasingly stringent energy efficiency codes for Arizona are proposed.

### **Policy Design:**

Building energy codes specify minimum energy efficiency requirements for new buildings or for existing buildings undergoing major renovations. It is recommended that Arizona take the following actions in order to realize the energy savings and other benefits offered by state-of-the-art building energy codes:

- Arizona should either establish a statewide mandatory code or strongly encourage local jurisdictions to adopt and maintain state-of-the-art codes. Adoption is targeted for 2007, with codes in force in early 2008, but with the recognition that some municipalities in Arizona may implement energy efficiency codes later than others.
- Arizona and/or local jurisdictions should adopt the 2004 International Energy Conservation Code (IECC), to the extent that adoption has not already occurred. Also, Arizona and/or local jurisdictions should consider adopting innovative features of California's latest Title 24 building energy codes, such as lighting efficiency requirements in new homes. In considering the adoption of building code elements, Arizona and/or local jurisdictions should take into account the time-dependent value of energy

by, for example, noting the extra benefits from code revisions that are particularly effective in saving on-peak electricity or gas.

- Arizona and local jurisdictions should update energy codes regularly. A 3-year cycle could be timed to coincide with release of the national model codes.
- Revised building codes for Arizona as a whole and for local jurisdictions should be prepared with the involvement of local chapters of code organizations to assist in obtaining support for and compliance with the new policies. All buildings should be covered, including manufactured homes, and local building inspectors should enforce compliance with codes. Inspectors need to be properly trained in new elements of the codes.

#### Implementation Method(s):

- Information and education: Would include training and education programs and certification for building planners, builders/contractors, energy managers and operators, local officials, and others in the building industry, including training on building energy performance analysis tools and software. Would also include programs for consumer and elementary/secondary education.
- Training and technical assistance for code enforcement officials, including training and assistance in the use of building energy performance analysis tools and software, and in the review and analysis of the outputs of building energy performance tools.
- Funding mechanisms and or incentives: Utility programs (designed to encourage building energy performance beyond codes) may help to provide financial assistance for training code officials in the application of building energy codes. Increases in permit fees and/or increase in “impact fees” may also be considered to assist with funding of training for code officials.
- Voluntary and or negotiated agreements: Agreements within Metropolitan Area Government councils to collaborate on building energy codes in order to make compliance easier for building contractors and other building trade professionals.
- Codes and standards—In addition to adoption of state and/or local and/or metropolitan area building energy performance codes, Arizona may consider starting a State Building Energy Codes Collaborative process and/or joining a Regional Building Codes Collaborative, as referenced (for example) on pages 65-66 of the WGA CDEAC EE report.

## **4. “Beyond Code” Building Design Incentives and Programs for Smart Growth**

#### Policy Description:

Building energy performance standards are implemented in State-funded and other (such as local) government buildings, and similar standards are promoted in other buildings, such that new buildings achieve high standards of energy efficiency, and existing buildings are renovated or retrofitted to yield significant energy efficiency improvements.

#### Policy Design:

Implementation of LEED (Leadership in Energy and Environmental Design, a program of the U.S. Green Building Council) standards/certifications and/or other “green building” certifications and/or measured or modeled building energy performance criteria may be used to specify building energy performance standards. Incorporating white roofs, rooftop gardens (“green roofs,” and shade trees would also be included by this policy. In addition to directly influencing energy use in state-funded and government buildings, this policy will help to raise awareness of energy-efficiency improvement methods in building construction and operation, and will help to “drive” such improvements in other market segments. This policy includes:

- A performance standard for State-owned or State-leased buildings to demonstrate the feasibility of achieving the minimum code requirements as well as exceeding them. This will demonstrate and encourage the use of advanced energy efficiency products and designs, and will also reward the State with the inherent benefits of more efficient buildings. New State-owned or State-leased buildings will be required to use at least 10% less energy per square foot of floor space relative to what the same building would have used if designed to just meet existing energy codes. The requirement of 10% lower energy use will be reviewed periodically, but is expected to remain in force as long as the level of improvement remains cost-effective.
- A requirement that state-owned or leased facilities use life-cycle costing, including full consideration of future energy costs, in the selection and implementation of building designs and components for both new and renovated space, or for the selection of replacement components. Further, following life cycle cost analysis, require that the most cost-effective design/equipment/component options be chosen.
- Provide financial or tax incentive for non-public and non-state public buildings (such as municipal buildings) to improve their energy performance beyond that required by existing codes. Incentives should be provided for building projects (new, renovated, or remodeled space) where energy consumption per unit floor area is at least 10% less that would be the case if the project met existing codes, noting that energy codes will change over time. Incentives should be structured so that projects that produce higher savings per unit floor area relative to meeting code requirements receive greater incentives.
- Provide similar financial or tax incentives to encourage retrofits of existing buildings to levels of energy efficiency exceeding those required by existing energy codes.
- Performance standards, life cycle costing requirements, and incentive programs to begin at some point to be determined in the future.

#### Implementation Method(s):

- Information and education: Would include training and education programs and certification for state officials, building planners, builders/contractors, energy managers and operators, and local officials on certification that buildings and building subsystems have met program requirements. Would also include programs for consumer and elementary/secondary education.
- Technical assistance: Assistance to building planners, engineers, and others in energy-efficient design and in building energy efficiency analysis, possibly including reference materials, performance/design guidelines, and assistance with energy performance analysis software.
- Funding mechanisms and or incentives: Tax credits and/or incentives related to the rate of amortization of expenses related to buildings or renovation. State grants to help cover additional costs of energy performance enhancements for municipal government buildings.
- Voluntary and or negotiated agreements: Agreements by municipal governments, builders to meet higher energy performance standards in exchange for special certification and/or financial incentives.
- Codes and standards: For state-owned or state-leased space, requirements to exceed codes in force as noted above.
- Pilots and demos: Applications of building energy performance improvements (possibly including demonstration of construction of buildings to LEED or other relevant standards) and urban landscaping for government buildings.

## 5. Distributed Generation/Combined Heat and Power

### Policy Description:

Distributed generation with clean combined heat and power systems improves the overall efficiency of fuel use as well as electricity system benefits. Implementation of these systems should be encouraged through a combination of regulatory changes and incentive programs.

### Policy Design:

Distributed generation in the form of clean combined heat and power systems give electricity consumers the capability of generating electricity or mechanical power on-site to meet all or part of their own needs, sell power back to the grid, and, through capture of heat typically lost during power generation, meet on-site thermal needs (hot water, steam, space heat, or process heat) or cooling (for example, through application of absorption chillers). In so doing, distributed generation with combined heat and power (CHP) raises the overall efficiency with which fuel is used. In addition to improvements in the efficiency of fuel use, and related reduction in greenhouse gas emissions, expanded use of distributed CHP offers significant electricity system benefits (including avoided electricity transmission and distribution losses, and avoided requirements for electricity grid expansion). Policies to encourage the adoption of CHP include a combination of regulatory changes and possibly incentives for adoption of CHP systems. CHP systems of 10 MW or smaller (or of equivalent mechanical power) would be covered, and policies in place by the end of 2006, and in force thereafter, with periodic review as needed. The combination of regulatory changes and incentives will be designed to allow a certain percent of Arizona's estimated remaining CHP potential to be realized at some in the future.

### Implementation Method(s):

[Note that in the list of incentives below technical assistance, codes and standards, market-based mechanisms, and utility planning (in that order) are considered by TWG members to be of primary importance, while other mechanisms are considered of secondary importance.]

- Information and education: Would include training and education programs and certification for building planners, builders/contractors, energy managers and operators, and state and local officials related to the incorporation of CHP into building plans/designs/operation. Would also include programs for consumer and elementary/secondary education.

- Technical assistance: Assistance in siting and planning CHP systems.

- Funding mechanisms and or incentives: A program similar to that offered in California with up to \$500 per kW or equivalent incentives per horsepower (hp) of capacity is possible. Another possible financial incentive is production of \$0.015 per kWh or equivalent incentives per hp-hour.

- Voluntary and or negotiated agreements

- Codes and standards: A national IEEE standard, IEEE #1547, has been adopted to facilitate DG installations. FERC has adopted a national interconnect standard for installation to transmission lines. A number of other states, including Texas, California, New Jersey, and New York, have adopted interconnect standards to facilitate DG installation. A similar standard is needed in Arizona, and has recently been under discussion at the ACC22.

- Market based mechanisms: Net metering, avoided-cost pricing rules, and/or other utility tariff policies that promote CHP. Performance contracting is another possible mechanism, for example, HB 2430 expands the definition of allowed performance contracting for State facilities and schools to include the use of CHP, and extends the allowable payback period to 25 years

- Pilots and demos: CHP systems in government buildings.

- Research and development: Support for research on combined power and cooling systems.